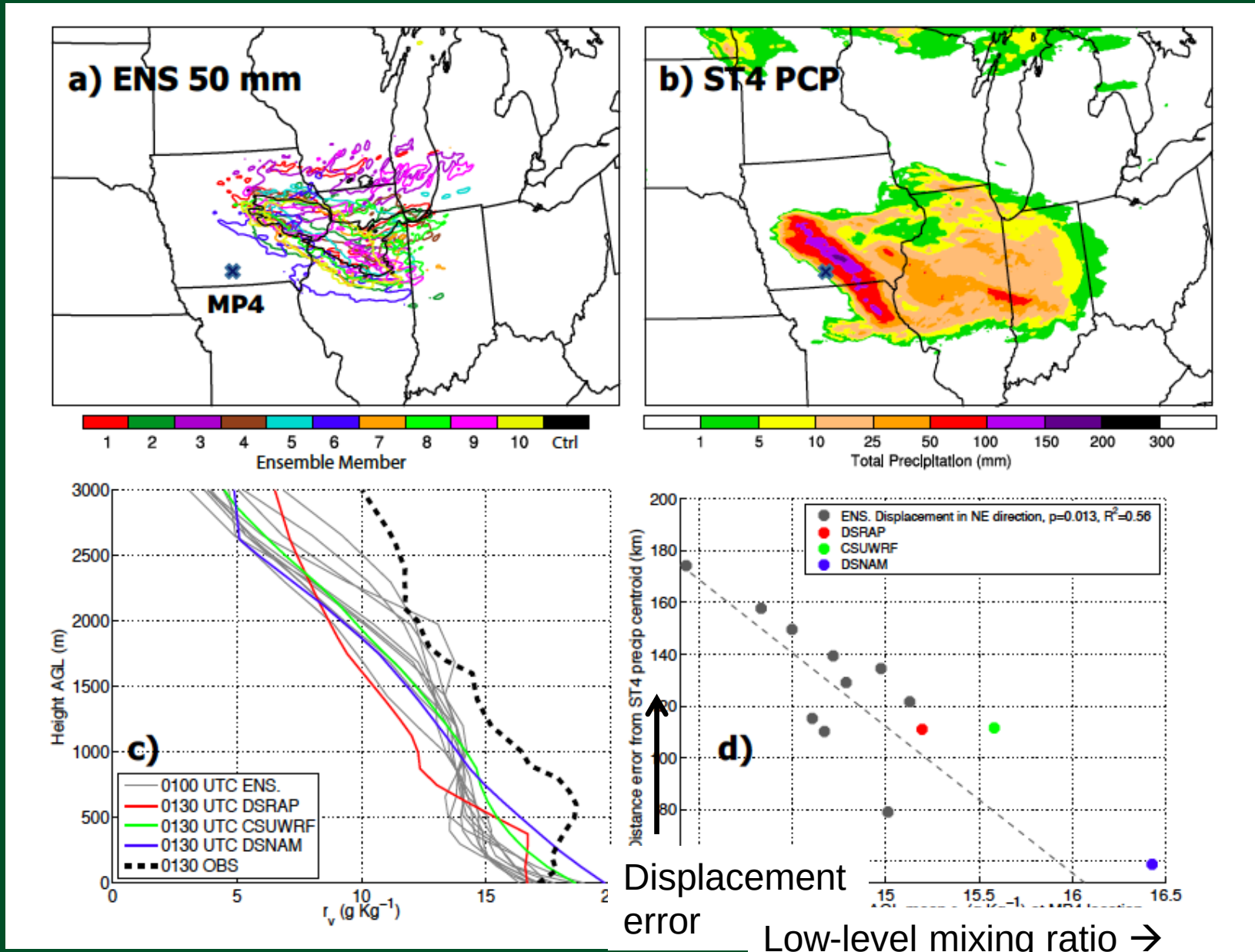
Simulations show that precipitation forecasts are especially sensitive to water vapor and its vertical profile

Field observations reveal important errors in moisture profiles in operational analyses and forecasts

Can new observations (remote sensing of moisture, etc.) lead to improvements in rainfall forecasts?




Peters et al. (2017, MWR)

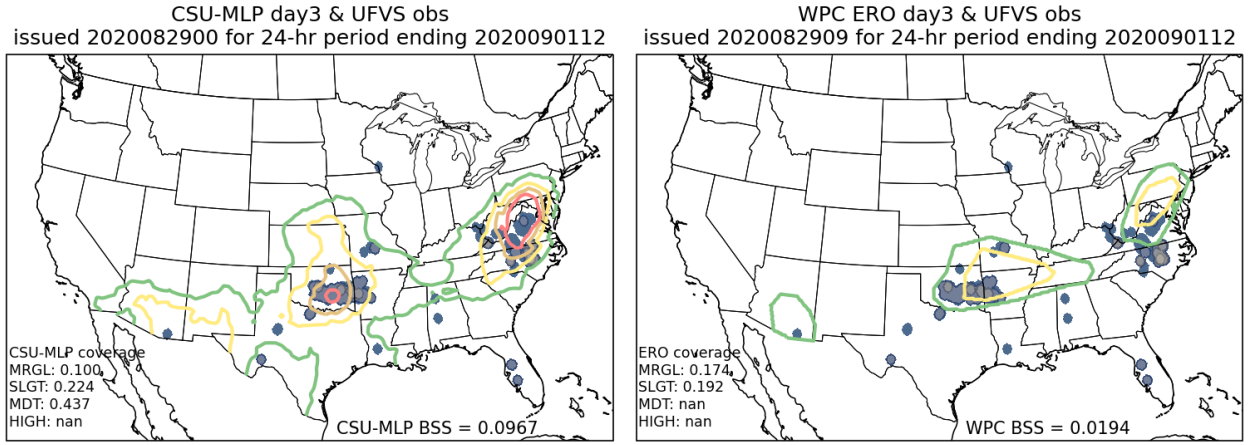
We know that post-processing of numerical model output (using machine learning or other techniques) works well for the short range through the medium range

How far can these methods extend the skill? What new methods can be developed for S2S timescales?

Based on Herman et al. (2018a,b)

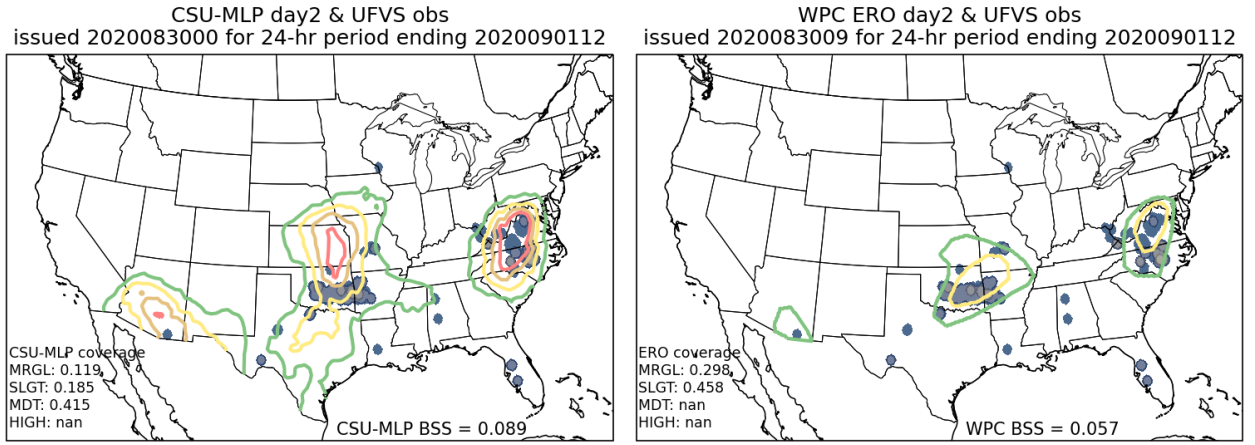
CSU-MLP forecasts & obs

WPC forecasts & obs



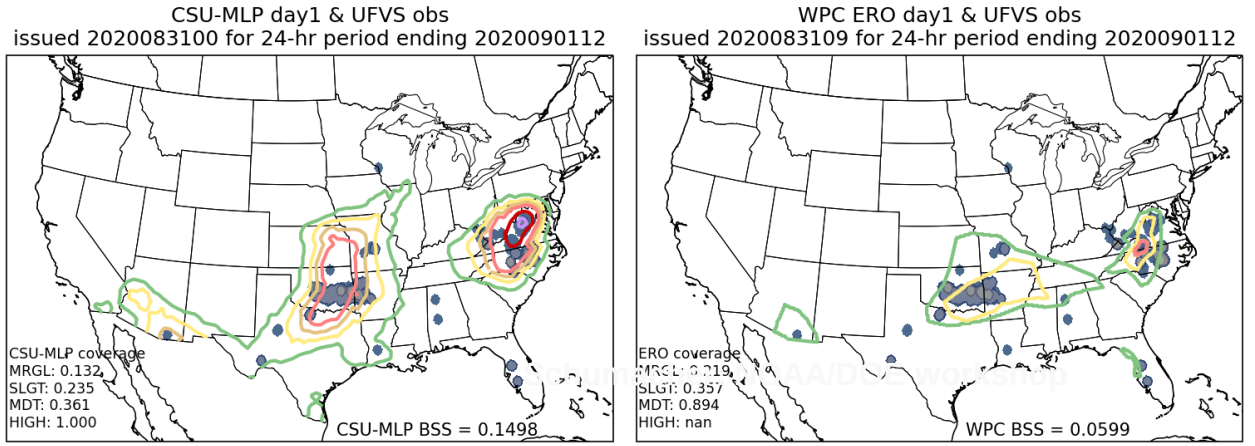


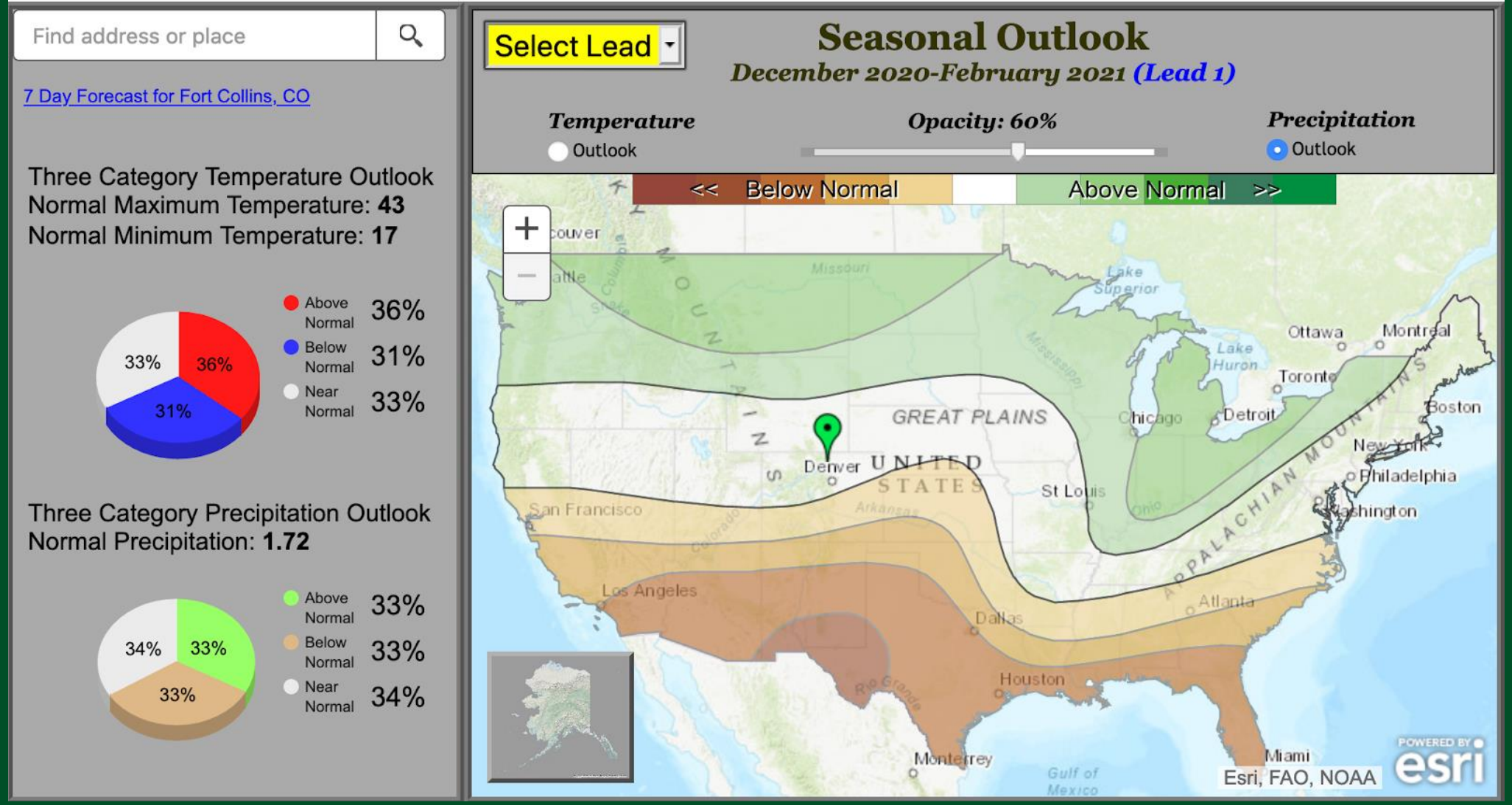













In Colorado and the west, there is a major reliance on subseasonal to seasonal outlooks, but they aren't always very good (and can be confusing to users.) Where can we make progress on this challenging issue?